

The bill of *A. melleri* is long and thin, a diagnostic feature of the species, and in the field that of the male appears longer than that of the female. Investigation of captive birds at JWPT (Table 2) shows that the length of the head and bill of the male is significantly greater than that of the female ($t = 11.965$, d.f. = 38, $P < 0.01$), giving this long-billed appearance. This was also found in 12 specimens measured at the BMNH ($t = 3.224$, d.f. = 10, $P < 0.01$; Table 2).

Specimens in the hand may be sexed by determining skull length by measuring, with calipers, the distance between bill-tip and the back of the head (Fig. 2). This method removes the need to use the intrusive technique of cloacal examination (see Hochbaum 1974 for description), and can be done swiftly with pre-set calipers.

With experience, individual Meller's Ducks can be sexed easily at close range and with little trouble in the field.

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The specific characters of the Slender-tailed *Cisticola Cisticola melanura* (Cabanis)

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The Slender-tailed *Cisticola** *Cisticola melanura* is endemic to miombo (*Brachystegia*) woodland and restricted to a very limited area within this

*This bird does not have a well-established common name and Black-tailed *Cisticola* would seem more appropriate in view of the all-black tail.

biome, in northeastern Angola and southwestern Zaïre. It is apparently rare everywhere, and its range is highly disjunct and fragmented. It was first described from northern Angola without precise locality by Cabanis (1882), *J. Orn.* 30: 349) as *Dryodromas melanura*; later a similar bird from the Lufupa River, Katanga, was described by Neave (1909, *Ann. Mag. Nat. Hist.*, ser. 8, 4: 130) as *Dryodromas pearsoni*. Chapin (1953) first suggested that they were conspecific, and White (1962) placed *pearsoni* in the synonymy of *melanura*. The species remains known from only 13 or 14 specimens from 5 or 6 localities, in rich, apparently undifferentiated savanna woodland. It has never been studied in life and the little that is known about it comes from the observations of collectors. Its generic affinities have also been the subject of some disagreement and it has on occasion been incorrectly placed in the genus *Apalis* (Hall & Moreau 1970, Mackworth-Praed & Grant 1963), but the bill is very typical of the genus *Cisticola* and quite unlike any *Apalis* (Irwin 1990; see also Chapin 1953). A measure of doubt has even been cast on its status as a distinct species. Dowsett & Dowsett-Lemaire (1980), discussing the relationships of the Short-tailed Neddicky *C. fulvicapilla* and the Long-tailed Neddicky *C. angusticauda* which they regarded as conspecific, went on to suggest that the bird called *Apalis melanura* by Hall & Moreau (1970), and also known as *Cisticola pearsoni*, will in time be found to be conspecific with *C. fulvicapilla* as it is very like the apparently allopatric but ecologically similar *angusticauda*. It was with this suggestion in mind, and in the preparation of the species texts for Volume 5 of *The Birds of Africa*, that the present investigation was undertaken. The known material of *C. melanura* is listed in Table 1.

The characters of *Cisticola melanura*

Of the total of 14 study skins, I have personally examined 5 in Tring, 7 others have been examined on my behalf by others, and 2 were inaccessible. The descriptions which follow are based on the material at Tring. On first examination the reddish crown, duller reddish-brown mantle, greyish-brown wings and tail with long and narrow black rectrices of *melanura* are superficially very reminiscent of both *C. angusticauda* and *C. fulvicapilla dispar*, particularly on the upperparts, and it might well be thought that the characters considered to distinguish *melanura* could be attributed to wider variation within a geographical continuum between conspecifics, as suggested by Dowsett & Dowsett-Lemaire (1980). However, on more critical examination *melanura* can be shown to possess characters not shared by the others, one of them unique.

Lynes (1930) in his review of the genus *Cisticola* examined the type of *melanura* and judged it not to be a member of the genus because of its steeply graduated tail with long narrow, plain blackish rectrices, and concluded it was nearer *Apalis*. Lynes originally also excluded *C. angusticauda* from *Cisticola*, but after extensive field experience reversed his earlier decision (Lynes 1936), noting that its behaviour, habitat, nest and even voice were remarkably like those of *fulvicapilla*. Lynes (1938) continued to exclude *melanura* from *Cisticola*, though commenting on its general similarity in appearance to *angusticauda*. He then went on to

TABLE 1
Known material of *Cisticola melanura*

Locality	Sex	Date	Wing	Tail	Culmen	Collector	Museum
Mona Quimbundo, Angola (type of <i>melanura</i>)	? ¹	1880	49	48	10.5	O. Schütt	Zoologisches Museum für Naturkunde der Humboldt-Universität, Berlin
Lufupa River, Shaba, Zaïre (type of <i>pearsoni</i>)	M	30 Oct 07	49	50	10	S. A. Neave	British Museum (Nat. Hist.), Tring
Lufupa River, Shaba, Zaïre	F	30 Oct 07	46	43	10	S. A. Neave	British Museum (Nat. Hist.), Tring
Lufupa River, Shaba, Zaïre	F ²	28 Oct 07	49	43	11	S. A. Neave	American Museum of Natural History, New York (ex Tring coll.)
Near Nasondoeye, Shaba, Zaïre (on upper Lufupa River)	F	26 Aug 33	45	40	11	Lynes/Vincent	British Museum (Nat. Hist.), Tring
Near Nasondoeye, Shaba, Zaïre	F	26 Aug 33	45	42	11	Lynes/Vincent	British Museum (Nat. Hist.), Tring
Near Nasondoeye, Shaba, Zaïre	F	26 Aug 33	47	42	11	Lynes/Vincent	British Museum (Nat. Hist.), Tring
Near Nasondoeye, Shaba, Zaïre	M ³	26 Aug 33	48	52	10	Lynes/Vincent	Koninklijk Museum voor Midden-Afrika, Tervuren (ex Tring coll.)
Gungu, Pay Kikwanga, Kwango, Zaïre (see Schouteden 1965)	? ³	27 Feb 60	47	48	10	H. Wille	Koninklijk Museum voor Midden-Afrika, Tervuren
15 km SW of Cacolo, Angola	M ⁴	27 Dec 54	49	46	10.5	G. Heinrich	Peabody Museum of Natural History, Yale University, New Haven
15 km SW of Cacolo, Angola	F ⁴	8 Jan 58	43	41	11.0	G. Heinrich	Peabody Museum of Natural History, Yale University, New Haven
15 km SW of Cacolo, Angola	M ⁵	—	—	—	—	G. Heinrich	Museu do Dundo, Dundo
Cafunfo, Lunda, Angola	M ⁵	—	—	—	—	—	Museu do Dundo, Dundo
Near Cazoo, Angola (see text)	M ⁶	7 Sep 57	49	51	11.5	R. Boulton	Field Museum of Natural History, Chicago

Notes:

¹Specimen measured by G. Mauersberger

²Specimen measured by Stuart Keith

³Specimens measured by R. J. Dowsett

⁴Specimens measured by Mrs E. H. Stickney

⁵Specimens not examined (see Rosa Pinto 1973)

⁶Specimen measured by M. A. Traylor

remark on the all-black tail and generally blacker rather than brown-tinted feather tracts, *and the quite different wing contour to any Cisticola or Apalis we know of* (my italics), but did not discuss any other differences. This may seem strange, but J. Vincent, who accompanied Lynes on this and many other expeditions, remarks (*in litt.*) that once Lynes had dismissed any likelihood of a bird's being a *Cisticola* he could not be bothered further with it. Lynes did say that *melanura* was probably one of those birds which will not be properly classified until it is known in life, and regretted being unable to add anything substantial about it. The situation remains little different more than half a century later, though we can say with greater confidence now than then, that *melanura* is indeed a true though somewhat aberrant member of the genus *Cisticola*.

But to what did Lynes refer in his cryptic statement on unusual wing characters that nobody has ever subsequently commented upon? An examination shows that the wings are not only markedly rounded, but that the 5 distal primaries (except the vestigial outermost one) appear highly specialised; the rachis is twice the width of those of *fulvicapilla* and *angusticauda* (most noticeably so in males), glossy black and heavily melanised (hard and resistant to pressure), and it was to this that Lynes was undoubtedly referring. The only widely available description of *melanura* (Mackworth-Praed & Grant 1963) is inadequate, and the more important comparative characters distinguishing it from its closest relatives are given here. The markedly rounded wing has the outermost primary needle-shaped, acute, *c.* 6 mm exposed beyond the coverts, and the 4th primary (numbered from the outermost) shorter than primaries 5–6. In *fulvicapilla* the outermost primary is blade-like with *c.* 15–17 mm exposed; and in *angusticauda* it is somewhat intermediate, with primaries 3–6 equal in length, with primaries 2–3 narrowed, and the outermost primary narrow and acute (with *c.* 12 mm exposed). However, in both *fulvicapilla* and *angusticauda* the rachis is light brown (not black), of normal width and neither melanised nor stiffened. The tail of *melanura* is also atypical for the genus, consisting of narrow, jet-black rectrices, grey-tipped below (except the central pair) and lacking the blackish sub-terminal spot characteristic of the other two species; the outermost rectrix is *c.* 24 mm shorter than the innermost (central) pair, compared to *c.* 20 mm shorter in *angusticauda* and *c.* 10 mm shorter in *fulvicapilla*. In *melanura* the tail is also very narrowly margined brown above and silvery grey below and, more importantly, shows some sexual dimorphism. In the male the outer web of the outermost rectrix is contrastingly off-white (except for the grey tip), while in the female the outermost rectrix is simply edged brown. This character in the male is well shown in Grönvold's illustration of the type of *pearsoni* in *Ibis*, 1910, plate 2, where both sexes are illustrated. On the underparts *melanura* is colder and whiter, less buffy than either *C. f. dispar* or *angusticauda*. There are also size differences separating the three forms and these are set out in Table 2.

Despite differences in wing formulae, *melanura*, *angusticauda* and *dispar* are all similar in wing length. In contrast the tail of *melanura* is shorter than long-tailed *angusticauda*, the females significantly so, but both are markedly longer than short-tailed *dispar*. In bill measurements *angusticauda* is shorter (and finer), while *melanura* and *dispar* are similar.

TABLE 2
Comparative measurements (range and mean, in mm) of *C. melanura*,
C. angusticauda and *C. fulvicapilla dispar*

Species	N	Wing	Tail	Culmen from base
<i>melanura</i>				
M	4	48–49 (48.7)	46–52 (49.9)	10.0–11.5 (10.5)
F	6	43–49 (45.9)	40–43 (41.8)	10.0–11.0 (10.8)
<i>angusticauda</i>				
M	50	46–51 (48.1)	48–61 (53.0)	9.5–10.5 (10.0)
F	30	41–49 (45.4)	43–54 (47.4)	9.0–10.5 (9.9)
<i>dispar</i>				
M	14	45–50 (48.5)	36–43 (39.0)	10.5–11.0 (10.8)
F	4	45–46 (45.2)	35–37 (35.7)	10.5–11.0 (10.7)

However, the race *dispar* has a considerably shorter bill (10.8) than *C. f. muelleri* (11.0–12.5, mean 11.6) inhabiting lower-rainfall savannas. The bill of *melanura* is sepia, with the lower mandible flesh-coloured, becoming blacker in skins; the culmen more arched and robust than in either *angusticauda* or *dispar*.

Moult and seasonal plumage changes

The available material shows no evidence of seasonal plumage differences or change from breeding to non-breeding dress. This is in sharp contrast to *fulvicapilla* and *angusticauda*, in which there are well-marked seasonal differences. From skulls Lynes (1938) estimated the Nasondoye series to be at least five months old; they are especially fresh-plumaged and cannot be distinguished from those obtained by Neave in late October when breeding should have started. It seems therefore that *melanura* may have only a single annual moult after breeding and lacks a distinctive nuptial plumage. In contrast both *fulvicapilla* and *angusticauda* have two annual body moults, immediately after breeding and again at the commencement of the following breeding season.

Remarks on specimens examined by others

The type of *melanura* in Berlin was examined by Dr G. Mauersberger who confirmed (*in litt.*) that the 5 distal primaries (excluding the outermost) showed broadened, almost glossy brown-black shafts. Lynes had written on the label that the specimen was not far removed from the birds in the British Museum labelled *pearsoni*, the only material difference in colour being that *pearsoni* has the rufous of the head and neck confined to a wash over the mantle, and that both specimens had the same black tail of long narrow rectrices and a very minute needle-shaped outermost primary. M. A. Traylor reporting on the male in Chicago confirms that it also possesses heavy black primary shafts and that the outer web of the outermost rectrix is white proximally, fading to dark grey distally. Stress was also placed on the very rounded wing compared with that of *angusticauda*, with the primaries seemingly much broader. Stuart Keith (*in litt.*), reporting on the specimen in New York, confirms that it has the

same thickened black outer primary shafts and remarks on the extremely small outermost primary. R. J. Dowsett (*in litt.*), with Dr M. Louette, examined the two Tervuren specimens, one of them from Nasondoye (*ex* Tring) and reported on by Lynes (1938), the other from Pay Kikwanga, originally identified by Dr H. Schouteden and labelled in his handwriting. They were compared with a small series of *angusticauda* in breeding dress which were immediately distinguishable by the brick-red crown and greyish mantle, lacking in *melanura*. Dowsett concluded that *melanura* was nevertheless unlikely to be distinct from *C. fulvicapilla sensu lato*; he later examined the material in Tring but could not convince himself that *melanura* was a good species, in spite of plumage differences, the rounded wing and the stiffened primaries. Mrs E. H. Stickney (*in litt.*) compared the two specimens in New Haven, confirming that the black-shafted primaries were stiffened and the wing rounded. She also provided colour slides which enabled me to make a clearer assessment. The male has the crown and nape markedly reddish, contrasting strongly with the greyish mantle, and the wing-coverts and outer webs of the primaries and secondaries are undiluted grey. The female differs quite notably: the reddish tones extend over the back and wings, without any grey. Both possess the typical black tail, very noticeable in the male, whereas the female taken later in the season shows distinct signs of wear and abrasion. Lynes, comparing the type of *melanura* with *pearsoni*, noted that in the latter the rufous of the hind-neck was confined to a wash over the mantle, and from this it is assumed that *melanura* was the greyer of the two. Chapin (1953) also noted that the back may be greyer in the bird from Angola, more reddish-brown in that from Katanga. The male at New Haven seems to confirm this and the type of *melanura*, though unsexed, is from its size almost certainly a male (wing 49, tail 48). However, the contrastingly reddish tones of the single female cannot simply be put down to individual variation. There may possibly be additional sexual dimorphism in the Angolan population, and there may be geographical variation between the Angolan and Zaïrean isolates. However, it is not possible to pursue the matter at this stage with the very limited material available.

The bird in life

Those observers who have seen *melanura* in life have been struck by its distinctive habits, but have never compared it directly with *fulvicapilla* or *angusticauda*. Neave (1910a) found it not uncommon on the Lufupa River at the end of October, which would be the start of the breeding season. It was encountered usually in pairs and inhabited rather *tall* (author's italics) trees, not bushes in woodland; it was very conspicuous on the wing, and flew with a clicking sound, exactly as if it were going by clockwork. Heinrich (in Ripley & Heinrich 1960) found it near Cacolo in the continuous dry woods of the plateau, mostly in the neighbourhood of grassy clearings. It was neither very elusive nor difficult to observe, usually dwelling in the branches and crowns of lower trees, searching the foliage in the manner of an *Apalis*, for which it was mistaken several times. When disturbed or excited, they flipped their wings with a purring noise.

Specimens were obtained in the middle of the breeding season (a female ready to lay in early January). Lynes (1938) reported on it very briefly but never saw it alive. J. Vincent (*in litt.*) personally collected the only ones seen in late August before the onset of the breeding season, and wrote in his original field notes: "Both the 'pairs' of *melanura* which I watched (and shot) spent all the time poking about low down and kept up a continuous, small 'wispig' squeak very like that uttered by the Blue Waxbill *Uraeginthus angolensis*". Vincent also reports that there was no wing snapping as recorded by others, and this and the marked difference in behaviour may have reflected the time of year. Like Heinrich, he also remarked on the similarity in life between *melanura* and *Apalis*. Hall & Moreau (1970) quoted Vincent as saying *melanura* was quite uncisticoline in life. Dean *et al.* (1988) saw two birds in a mixed-species foraging flock in August in climax *Brachystegia boehmii* woodland, but the record needs verification.

It is not possible to draw any clear conclusions from these observations except that the species does appear to behave differently from its nearest relatives. It also seems highly probable that the unique wing specialization is connected with display flights in the breeding season.

Sympatry with *fulvicapilla* and *angusticauda*

Within the miombo biome *fulvicapilla* and *angusticauda* behave as allo-species with a narrow zone of hybridization in Zambia (Benson *et al.* 1971). Within their respective ranges they are believed to be continuously distributed in suitable habitat (see map in Dowsett & Dowsett-Lemaire 1980), making due allowance for unmapped areas. Their overall distribution is shown on map 199 in Hall & Moreau (1970) and that for *melanura* (as *Apalis melanura*) on map 214. However, attention must be drawn to the corrections on map 214 under *Corrigenda* in Snow (1978). If the latter map is superimposed on the former it shows that *melanura* either replaces *angusticauda* locally in parts of Shaba or is sympatric with it. It seems significant that neither Neave (1910a) nor Lynes (1938) ever reported *angusticauda* on the upper Lufupa River where it would certainly be expected to occur, and Dowsett & Dowsett-Lemaire (*op. cit.*) remark that it is strange that *melanura* has never been recorded in adjacent Zambia where *angusticauda* is common. Being more similar to one another than either is to *fulvicapilla*, they may replace each other locally. However, it can now be shown conclusively that in at least one Angolan locality *melanura* and *C. f. dispar* are fully sympatric. Mrs E. H. Stickney (*in litt.*) reports that apart from the two *melanura* specimens from near Cacolo, there is also a single specimen of *dispar* collected there by Heinrich on 29 December 1957, showing that they must occur alongside one another there.

Remarks on collecting localities

Doubt surrounds a number of localities where *melanura* has been recorded, and there is need for clarification. The type locality of *melanura* long given simply as Angola, or more specifically northern Angola, was

restricted by Irwin (1990) to Mona Quimbundo, in Lunda Province at 09°55'S, 19°58'E. The type locality of *pearsoni* was given somewhat imprecisely by Neave (1909) as the Lufupa River, western Katanga. Neave (1910b) provided a detailed map of his journey; he crossed the Lufupa River twice on its upper reaches, but the map is not helpful in pinpointing where precisely his specimens were collected. However, Lynes (1938) regarded his specimens from near Nasondoye at 10°30'S, 25°00'E as being topotypes, and Nasondoye may be conveniently regarded as the restricted type locality. It should be noted that the Neave and Lynes material was mapped separately in Hall & Moreau (1970), later corrected in Snow (1978). Irwin (1990) has already noted that the Heinrich specimens (Ripley & Heinrich 1960), stated to have been collected 50 km southwest of Cacolo, were actually obtained only 15 km to the southwest with approximate co-ordinates 10°00'S, 19°24'E. Some doubt also surrounds the Boulton specimen from Cazoa which M. A. Traylor (*in litt.*) was unable to trace on any map. However, he has kindly informed me that from the collector's itinerary and field notebooks it appears to have been in Lunda between Caxia at c. 08°54'S, 20°39'E and the crossing of the Rio Cassai at c. 11°12'S, 20°15'E. The locality Cafunfo, in Rosa Pinto (1973), has not been precisely located, but from his text, where it is mentioned with some frequency, it must be somewhere in the north of Angola in Lunda along the Cuango River. (According to M. A. Traylor (*in litt.*), the Cacolo specimen listed therein was almost certainly collected by Heinrich who deposited a number of specimens in the Museu do Dundo.) Finally Dean *et al.* (1988) give a sight record from Kangandala National Park in Malange, which (if verified, see above) would extend the range of the species westwards. They give only co-ordinates for Kangandala village at 09°47'S, 16°28'E, which may be used as an approximate position.

Relationships

The degree of relationship between *C. fulvicapilla* and *C. angusticauda* on the one hand and *C. melanura* on the other is especially difficult to assess. Dowsett & Dowsett-Lemaire (1980) were quite emphatic that the first two are conspecific, and few would deny (including the present writer) that in life they seem identical in habits, behaviour and similarity of voice. Yet if they were merely geographical representatives of a single variable species it would be difficult to reconcile not just differences in plumage but structural aspects (wing formulae and structure, and tail-length and proportions). But it is worth pointing out that whereas *fulvicapilla* is highly polytypic and wide-ranging, *angusticauda* (also wide-ranging) is virtually endemic to miombo and shows no geographical variation. At the same time there are equally and undeniably close similarities between *angusticauda* and *melanura* (though not in behaviour), which in some respects seem structurally closer to one another than either is to *fulvicapilla*. And whereas *fulvicapilla* and *angusticauda* have parapatric ranges with an apparent narrow hybrid zone, *angusticauda* and *melanura* appear mutually exclusive. *C. melanura* on the other hand is known to be at least partially sympatric with *C. f. dispar* and they cannot be treated as

conspecific. The little that is known of *melanura* in life, together with its specialised wing morphology, points to its being adapted to a life-style different from either *fulvicapilla* or *angusticauda*. These facts further emphasise our present lack of knowledge and proper understanding of the relationships and evolutionary history of this group of cisticoline warblers.

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